

REMARKS

Claims 1-8,12 and 13 are all the claims pending in the application.

Claim Rejections - 35 U.S.C. § 102

The Examiner continues to reject claims 1-7, 12 and 13 under 35 U.S.C. § 102(b) as being anticipated by Woodward (5,312,040). Applicants respectfully traverse this rejection in view of the following arguments.

A) Claims 1, 2-4, 6 and 7

Claim 1 sets forth mixing and injecting a pressurized liquid and a pressurized gas. Claim 1 is allowable over Woodward at least because Woodward fails to teach mixing and injecting a pressurized liquid and a pressurized gas as claimed. In the Response to Arguments section of the outstanding Office Action the Examiner gives several rationales for rejecting claim 1. First, the Examiner asserts that claim 1 merely recites an intended use. However, contrary to the Examiner's assertions, the recitations of claim 1 require structural features which are not present in Woodward.

Claim 1 sets forth an injection nozzle for mixing and then injecting a pressurized liquid and a pressurized gas. This language implies a structure capable of mixing and injecting pressurized liquid and pressurized gas. Woodward lacks a structure on which this portion of the claim reads. For example, in Woodward the high pressure fluid stream 33 flows through either the nozzle 118 or the nozzle dump 120. The structure of the Woodward device is such that when the fluid stream flows to the nozzle 118, the compressed gas does not flow to the nozzle 118. The Woodward structure allows for only one of a high pressure fluid stream or a compressed gas to flow through the nozzle 118. The Woodward device cannot be used as set forth in claim 1

because of its structure. Therefore, contrary to the Examiner's assertion, the Woodward device does not have a structure which meets the requirements of claim 1.

Additionally, the Examiner asserts that Woodward discloses spraying a liquid and a gas. The Examiner asserts that the combination of air from the conduit 50 and liquid 33 creates a liquid and gas mixture and Woodward also discloses spraying a mixture at column 7, lines 19-24 (discussing some residual moisture being present in the barrel 116 or nozzle 118). With respect to the recitations of column 7, lines 19-24, even if the residual moisture could be considered as mixing and injecting with the compressed gas, any incidental residual moisture would not be a pressurized liquid. With respect to air from the conduit 50, even if air 50 did accompany the abrasive 18 through the flow conduit 62, it would not be pressurized air.

Claim 1 is also allowable over Woodward because Woodward fails to teach detecting the supply and stop of the pressurized liquid as set forth in claim 1. The Examiner asserts that because Woodward detects pressure, and that pressure fluctuation is inherent in stopping and starting the liquid in the line, that Woodward therefore detects the supply and stop of pressurized liquid. However, controlling the flow of gas based upon pressure of a fluid in a line, as done in Woodward, is not the same as controlling the flow of gas based upon the stopping and starting of liquid in the line, as claimed.

Woodward discloses detecting a change in pressure such that it can detect the difference between when pressurized fluid flows through the nozzle 118 and when it flows through the nozzle dump 120. However, in either instance fluid still flows, although it does so at different pressures. Woodward merely detects the difference between the high pressure and the low pressure flow. If, for instance, the flow changed from the low pressure flow to stopping,

Woodward cannot detect the change. Therefore, even though Woodward detects pressure, it does not detect the supply and stop of a liquid.

Accordingly, Applicants submit that claim 1 is allowable over Woodward at least for the reasons given above. Claims 2-4 and 13 depend from claim 1 and are therefore allowable at least because of their dependency.

Claim 6 sets forth that pressurized gas is supplied to the injection nozzle when the sensor detects the supply of pressurized liquid from the liquid tank to the injection nozzle. Therefore, similar to claim 1, the nozzle of claim 6 is supplied with both pressurized gas and pressurized liquid and claim 6 is therefore allowable at least for reasons similar to those given with respect to claim 1. Claim 7 depends from claim 6 and is allowable at least because of its dependency.

B) Claims 5 and 13

First, claim 5 sets forth a detecting means similar to the detecting means of claim 1. Therefore, claim 5 is allowable over claim 1 at least for reasons similar to those given above which are related to the detecting means.

Additionally, claim 5 sets forth a pump for pressurizing the liquid in a liquid tank to supply pressurized liquid and a liquid supply passage for connecting the liquid tank to the pump. Because the pump pressurizes the liquid in the liquid tank, pressurized liquid can be immediately supplied to the injection nozzle when the hand valve is opened. For example, with reference to a non-limiting embodiment of the specification, when the hand valve 19 is opened, pressurized liquid may be immediately supplied to the injection nozzle 2 (*see* Figs. 1 and 2 and specification page 14, lines 5-25). Claim 5 also sets forth a relief valve which returns extra liquid to the liquid tank and maintains a predetermined pressure on a downstream side of the pump. In this manner,

the relief valve prevents overpressurization. Claim 5 is further allowable over Woodward at least because Woodward fails to teach the specific configuration of a liquid tank, pump and supply passage as claimed and also fails to teach a relief valve.

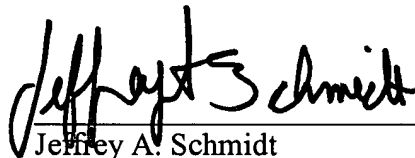
Claim 13 depends from claim 5 and is allowable at least because of its dependency.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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